DOCUMENT RESUME

ED 195 329 PS 011 831

AUTHOR Farber, Ellen A.: Moely, Barbara E.
TITLE Development of the Ability to Use Facial, Situational, and Vocal Cues to Infer Others' Affective States.
PUB DATE Mar 80
NOTE 15p.: Paper presented at the Biennial Meeting of the Southwestern Society for Research in Human Development (Lawrence, KS, March 27-29, 1980).

EDRS PRICE MF01/PC01 Plus Postage.
DESCRIPTORS *Ability Identification: *Affective Behavior: *Age Differences: *Children: *Cues: Elementary School Students: Perspective Taking: Preschool Children: Responses: Verbal Stimuli: Visual Stimuli
IDENTIFIERS Facial Configuration: Situational Variables: Voice Qualities

ABSTRACT

Results of two studies investigating children's abilities to use different kinds of cues to infer another's affective state are reported in this paper. In the first study, 48 children (3, 4, and 6 to 7 years of age) were given three different kinds of tasks (interpersonal task, facial recognition task, and vocal recognition task). A cross-age comparison of their responses was then made. Improvement with age was shown on all three tasks. Facial recognition was the easiest task, while vocal recognition was the most difficult task for all age levels. When the patterns shown across tasks and emotions were examined, identification of the emotion "happy" was found to be easier with facial and situational cues, while identification of the emotions "sad" and "mad" was easier with vocal recognition cues. The youngest group showed "sad"-"mad" confusion with both facial and situational cues, while 4- and 6- to 7-year-olds showed this confusion only with situational cues. In the second study, the same tasks were given to a group of 35 preschoolers during their first year in a university-based preschool and again one year later. In general, findings for correct responses closely replicated the findings for the two youngest groups in the original study. These findings suggest that preschoolers make considerable progress in judging emotions on the basis of cues available in faces, voices, and situations. (Author/MP)

**********
* Reproductions supplied by EDRS are the best that can be made *
* from the original document. *
**********

ED195329

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
NATIONAL INSTITUTE OF EDUCATION

THIS DOCUMENT HAS BEEN REPRODUCED EXACTLY AS RECEIVED FROM THE PERSON OR ORGANIZATION ORIGINATING IT. POINTS OF VIEW OR OPINIONS STATED DO NOT NECESSARILY REPRESENT OFFICIAL NATIONAL INSTITUTE OF EDUCATION POSITION OR POLICY

# Development of the Ability to Use Facial, Situational, and Vocal Cues to Infer Others' Affective States

Ellen A. Farber

University of Minnesota

and

Barbara E. Moely

Tulane University

"PERMISSION TO REPRODUCE THIS MATERIAL HAS BEEN GRANTED BY

Ellen A. Farber

TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)."

PS011831

Paper presented at the biennial meeting of the Southwestern Society for Research in Human Development, Lawrence, Kansas, March, 1980.

Development of the Ability to Use Facial, Situational,
and Vocal Cues to Infer Others' Affective States

One approach to understanding social development is to study the cognitive skills involved in inferring others' visual perspectives, thoughts, needs, and emotions. Reviewed by Shantz (1975) and more recently by Ford (1979), there is little evidence to justify classifying children across the board--ie., perceptually, conceptually, and affectively--as egocentric or allocentric. We chose to focus on one domain, affective perspective-taking. Defined as the ability to assess another person's emotional state, it has predominantly been measured by having the child predict the emotion of a story character based on situational cues provided in a narrative and accompanying pictures (Borke, 1971; Feshbach & Roe, 1968).

The ability to use at least some situational cues appears to be present by three years of age. However, children may also make inferences about another's affective state on the basis of cues provided by the person such as facial expression, sound of the voice, posture, and so on. Little is known about the development of children's skill in reading such cues and about the interrelationships among these abilities; are children either sensitive or insensitive to all cues, or is it cue-specific, or emotion-specific?

In the present research, children's ability to use three different kinds of cues to infer another's affective state was investigated. The Interpersonal Situations Task presents picture stories of a child in a school setting who experiences changes in emotional state as the result of another child's actions. The subject is asked to judge the target child's emotional state at the end of each story by selecting the correct choice from line drawings of faces showing happy, afraid, sad, or mad states. An example of the stories is as follows: "Billy is alone. The other children come over and ask Billy to play with them. Billy is playing with the other children" (happy). The Facial Recognition Task uses color photographs of the faces of 3rd and 4th grade children to represent the same four emotions (happy, afraid, sad, and mad). The subject is instructed to select a face that shows the emotion named by the experimenter. The Vocal Recognition Task uses tape-recorded voices of bilingual elementary school children reciting sentences in Spanish. The children attempted to represent each of the four emotions through expressive cues. The subject responds on each trial by attempting to identify the emotion that the tape-recorded message conveys.

Stimuli used in the Facial and Vocal Recognition Tasks were rated by 30 adults; those items on which adults showed the highest agreement as to emotion expressed were used for the task. Administration of the tasks generally took about 30 minutes. For the younger children, testing was done in two sessions if necessary to maintain the child's attention.

In the first study, a cross-sectional comparison was made of children 3, 4, and 6 to 7 years of age (8 boys and 8 girls at each age level). Initial analyses indicated no sex differences so the results reported here are for 16 children at each age level. More specifically, the youngest group averaged 46 months (range 40-52 months), the middle group 58 months (range 54 to 62 months), and the oldest group averaged 83 months (range 75 to 95 months). Figure 1 indicates the mean number of correct responses for each emotion tested on each of the tasks. As we expected, improvement with age was shown on all three tasks, although even the youngest children showed above-chance performance on each task. Facial recognition was the easiest, while vocal recognition was the most difficult task for all age levels. Of greater interest were the patterns of response shown across tasks and emotions. Use of facial and situational cues showed a similar pattern, in that identification of the emotion "happy" was easier than identification of the other emotions on both of these tasks. On Vocal Recognition, on the other hand, the emotions "sad" and "mad" were easiest to identify.

We examined the errors made to determine if responding was random or if particular emotions were confused systematically. With Borke's (1971) Interpersonal Perception Test, which involves children's reactions to stories somewhat similar to those of the Interpersonal Situations Task, she reported that young children frequently confused "sad" and "mad." On the three tasks used here, children showed no bias toward confusing "happy" with any of the other three alternatives when that was the correct response. "Afraid" was perceived as a negative emotion but children were equally likely to indicate either "sad" or "mad" as an alternative. Error patterns for trials in which "sad" was the correct response are shown in Figure 2; for trials in which "mad" was the correct response, errors are shown in Figure 3. As indicated there, the youngest group showed "sad" - "mad" confusions with both facial and situational cues, while 4- and 6 to 7-year-olds showed this confusion on the task measuring use of situational cues, but had no difficulty distinguishing "sad" and "mad"

faces. Vocal cues, on the other hand, did not produce a "sad" - "mad" confusion; in fact, as indicated in Figure 1, "sad" and "mad" were most easily discriminated at all ages on the basis of vocal cues. It may be that vocal cues serve a particularly useful function for the young child's distinction of these two negative emotional states in more realistic situations, where a variety of cues are available simultaneously.

To determine whether there are consistent individual differences in sensitivity to affect cues, we obtained partial correlations holding chronological age constant. Intercorrelations for total scores on the three tasks ranged from .28 ($p < .05$) to .44 ($p < .01$) indicating some consistency for affective perspective-taking ability. Looking at each emotion across all modes of expression, the ability to recognize a particular emotion across all modes of expression was moderately stable for the emotion "afraid," stable across two tasks for the emotion "sad," and showed little consistency for either "happy" or "mad." Exploring the within task correlations, partial correlations for performance on pairs of emotions tested within the same task were generally positive, but rarely attained statistical significance. Thus, children showed somewhat more stability in identifying the same emotion across modes of expression than they did in judging different emotions through the same mode.

In a second study, a group of 35 preschool children (18 boys and 17 girls) were given the tasks during their first year in attendance at a University-based preschool (mean age 44.7 months; range 39-52 months), and again one year later (mean age 56.7 months; range 51-63 months). Findings for correct responses closely replicated the findings for the two younger groups shown in Figure 1, although the four-year-olds in the second study tended to be slightly higher than those in the original study. Improvement with age, the differential patterns of response to the various emotions on the three tasks, and the analyses of errors all replicated the findings of the first study.

Intercorrelations of total scores on the three tasks were examined at each testing time. These indicated very little consistency across tasks among the children at age three, but moderate consistency ($r$'s from .22 to .30) during the second testing period. In conjunction with the findings of the first study, this suggests a general social ability is emerging with age.

Examining the stability of scores for individual tasks over the one-year period was not impressive. The correlation for Vocal Recognition was

negligible, low and not significant for Facial Recognition, and moderately stable for the Interperscnal Situations Task.

Performance on several other measures of social cognitive skill were also available for these children. Borke's Interpersonal Perception Test was given to the children each year, as was a set of tasks assessing the child's ability to take the visual perspective of another. These tests were given several months prior to our own measures each year. Intercorrelations of task scores from the present battery with the Borke test and the visual perspective-taking measure are shown in Table 1. The total score (sum of the scores on all three tasks) correlated positively with both the Borke test and the visual perspective-taking measure during both years. When we examine the correlations for the three tasks separately, the Interpersonal Situations Task is related more strongly to the Borke than to the visual perspective-taking battery, a finding that is reasonable on the basis of similarity of content and response required. The Facial Recognition Task is fairly well related to both the Borke and the visual perspective-taking battery during both years' assessments. The Vocal Recognition Task appears to be relatively independent of both the Borke test and the visual perspective-taking tasks, suggesting that it is measuring a rather different skill.

In sum, the findings suggest that preschoolers make considerable progress in judging emotions on the basis of cues available in faces, voices, and situations. This progress does not occur at the same rate for all emotions or all kinds of cues, and certain cues may have particular importance in determining judgments of certain emotional states.

Before concluding, we would like to speculate on some implications of our findings and measures for understanding social behavior and for further research. Since children demonstrate differential knowledge of particualr emotions, the use of a total sensitivity score rather than recognition scores for each emotion may decrease behavioral predictability. For example, a child who is particularly good at recognizing anger may be more or less aggressive than other children depending on whether s/he wishes to provoke or avoid anger. Likewise, a child who is adept at recognizing distress may be more inclined to help others. Needless to say, the relationship between knowledge and behavior remains to be demonstrated.

A second issue with respect to predicting behavior stems from the greater variability of responses to frustrating situations in earlier

years. Younger children may respond to the stories with answers descriptive of their own affect in frustating situations. The older children's answers, however, approximate adult expectations of the typical response reflecting a more generalized view of social situations which would be less predictive of their own response.

Finally, although we have focused on developmental trends, there were large individual differences. The best three-year-old did as well as the lowest seven-year-old. While affective perspective-taking skills may enhance a three-year-olds' interactions, they may not be as critical among young children whose agemates are rather unskilled, than a lack of skills at later ages. Intuitively, one might predict that a seven-year-old who can not recognize basic expressions of affect would be impaired in his/her social interactions. Empirically, there is still a need to tie affective perspective-taking knowledge to an affective and then a behavioral response.

## References

Borke, H. Interpersonal perception of young children: Egocentrism or empathy? Developmental Psychology, 1971, 5, 263-269.

Feshbach, N.D. & Roe, K. Empathy in six- and seven-year-olds. Child Development, 1968, 39, 133-145.

Ford, M.E. The construct validity of egocentrism. Psychological Bulletin, 1979, 86, 1169-1188.

Shantz, C.U. The development of social cognition. In E.M. Hetherington (Ed.), Review of child development research, Vol. 5. Chicago: University of Chicago Press, 1975.

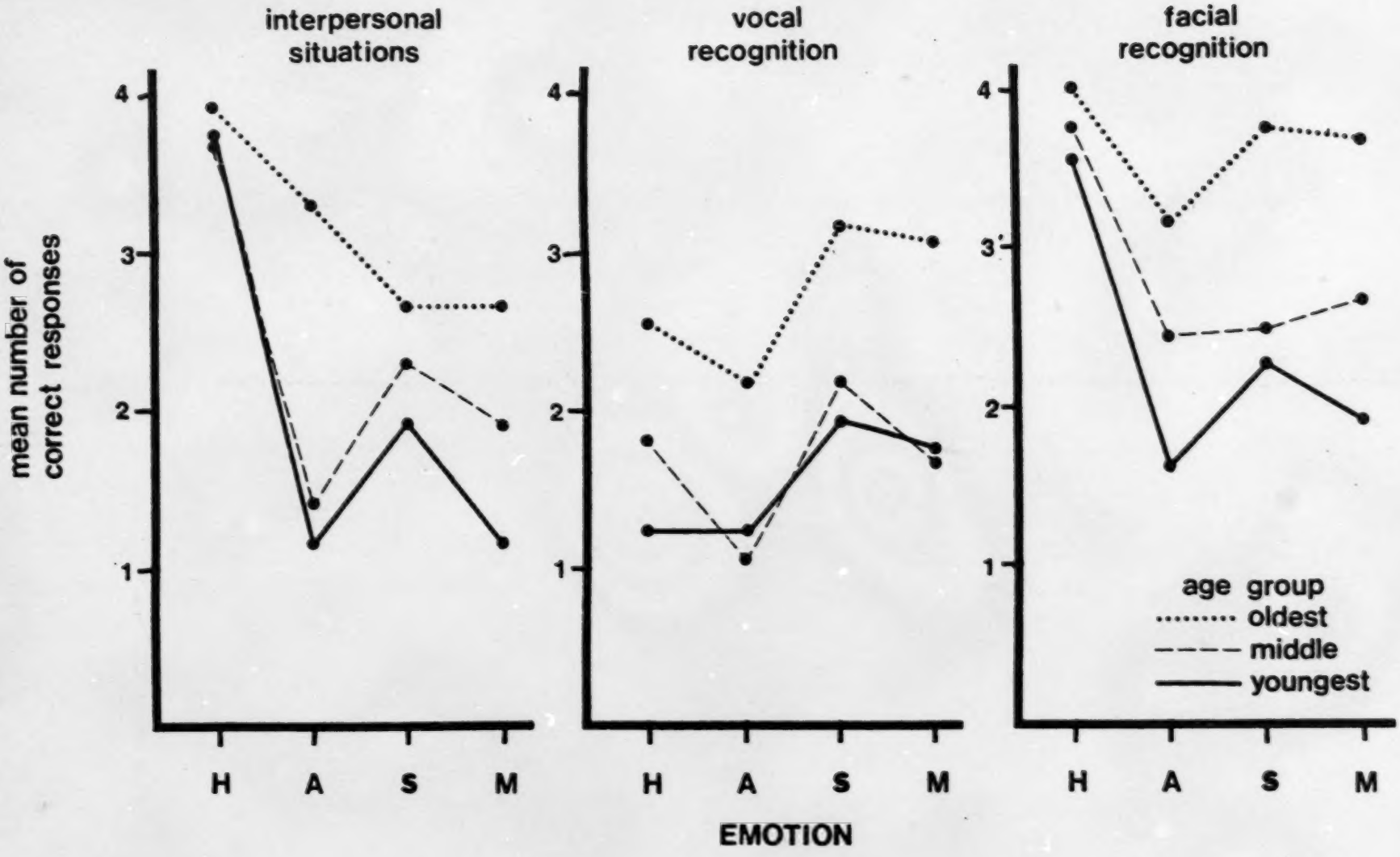


Figure 1. Mean number of correct responses by children of three age levels on each emotion tested in each task.

Figure 2. Mean choices of incorrect alternatives by children of three age levels on items for which "sad" was the correct response.

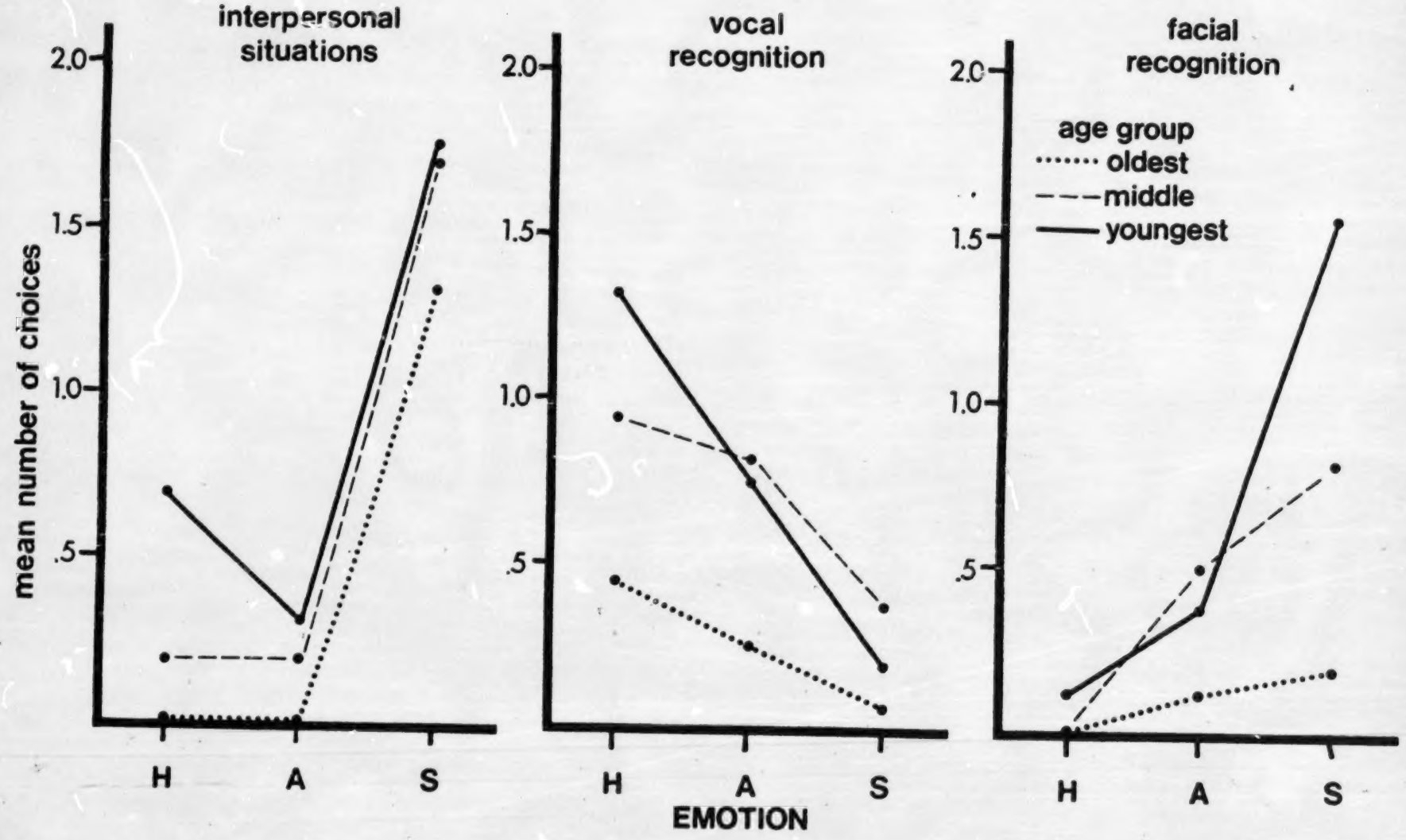


Figure 3. Mean choices of incorrect alternatives by children of three age levels on items for which "mad" was the correct response.

Table 1

Intercorrelations of Three Affective Perspective-Taking Tasks with Borke's Interpersonal Perception Test and with an Index of Visual Perspective-Taking in a Group of Preschool Children

| Tasks Intercorrelated | Time of Tests: First Year (Mean age 44.7 mo.) N | r | Second Year (Mean age 56.7 mo.) N | r |
|---|---|---|---|---|
| Borke with total score (Sum of IS, VR, FR) | 35 | .48** | 34 | .39* |
| Borke with IS | 35 | .46** | 34 | .24 |
| Borke with VR | 35 | .19 | 34 | .16 |
| Borke with FR | 35 | .25 | 34 | .40* |
| Visual Perspective-Taking with total score | 33 | .37* | 35 | .38* |
| Visual Perspective-Taking with IS | 33 | .19 | 35 | .11 |
| Visual Perspective-Taking with VR | 33 | .16 | 35 | .09 |
| Visual Perspective-Taking with FR | 33 | .31* | 35 | .56** |

* Correlation coefficient significant at $p < .05$

** Correlation coefficient significant at $p < .01$